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EXAMINER

AFREMOVA, VERA

ART UNIT

PAPER NUMBER

1657

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,968	<b>Applicant(s)</b> RUSING ET AL.	
	<b>Examiner</b> Vera Afremova	<b>Art Unit</b> 1657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-25 is/are pending in the application.
- 4a) Of the above claim(s) 19-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Claims 1 and 3-18 as amended (3/01/2010) are under examination in the instant office action.

Claims 19-25 were withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected invention(s). Election was made without traverse in the reply filed on 6/16/2009.

### ***Claim Rejections - 35 USC § 112***

#### ***Indefinite***

Claims 1 and 3-18 as amended remain/are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 as amended remains indefinite with respect to the claimed phrase “the total salt content being less than 3.5 g/L of total salts”. This phrase recites “total salt(s)” twice, thereby, raising to conclusion or to confusion that there are at least 2 entities of “total” salts used in the method for cultivating microorganisms. Further, it is uncertain what of these 2 entities of salt(s) “contains no added sodium salts or chlorine salt”. Therefore, it remains unclear as claimed whether amount of sodium salts and chloride salts are less than 3.5 g/L or whether amount of all salts either including or excluding sodium salts and chloride salts are less than 3.5 g/L in the method for cultivating microorganisms. Claim 1 is also confusing because it states that the fermentation medium “contains no added sodium salts or chlorine salt” but it is silent about when in the whole process this addition is excluded. Moreover, the depending claims 7-9 indicate that some sodium and chloride salts are present in the claimed process media. Thus, the claimed

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concept of salinity, amount of total salts and amounts of some individual salts such as sodium and chlorine are indefinite as claimed.

Claim 3 appears to recite the use of calcium carbonate but it is unclear what medium or step of the claimed method might incorporate this salt.

Claim 6 as amended now recites the limitation "a low salt fermentation medium" in the process of claim 1 wherein there is only recitation about "a fermentation medium". There is insufficient antecedent basis for this limitation in the claim.

Claims 7-9 recite the limitation "the low salt medium" in the method of claim 1. There is insufficient antecedent basis for this limitation in the claim. Claim 1 solely recites the use of "a fermentation medium".

Claims 10-13 recites the limitation "the low salt fermentation medium" in the method of claim 1. There is insufficient antecedent basis for this limitation in the claim. Claim 1 solely recites the use of "a fermentation medium".

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-7 and 9-16 as amended remain/are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,340,742 (Barclay).

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Claims are directed to a method for cultivating microorganisms of the genus *Thraustochytriales*, wherein the microorganisms are cultivated in a fermentation medium with total sodium salts and chloride salts being less than 3.5 g/L, wherein no sodium or chlorine salts are added after beginning of fermentation and wherein the microorganisms are capable of producing more than 10 % DHA per dry biomass. Some claims are further directed to the use of microorganisms capable of more than 5 % DPA per dry biomass. Some claims are further drawn to addition of up to 3 g/L CaCO<sub>3</sub> to the medium. Some claims are further drawn to the use of the medium with total sodium and chloride salt fractions less than 1.75 g/L. Some claims are further drawn to the use of the medium with total chloride sodium content of the medium being less than 250 mg/L. Some claims are further drawn to incorporation of various nutrients selected from glucose, yeast extract or corn steep liquor, magnesium sulfate, calcium carbonate and potassium phosphate. Some claims are further drawn to incorporation salts of magnesium sulfate, calcium carbonate and/or potassium phosphate in amounts less than 3 g/L each. Some claims are further drawn to the medium pH 3-10, to the cultivation temperature between 10°C and 40°C, to the cultivation time for 1 to 10 days in the claimed method. Some claims are further drawn to the microorganisms belonging to the genus *Schizochytrium*, *Thraustochytrium* or *Ulkenia*.

US 5,340,742 (Barclay) teaches a method for cultivating microorganisms belonging to *Thraustochytriales* including representatives of the genus of *Schizochytrium* as intended for production of oils, DHA and/or DPA, wherein the microorganisms are cultivated in a fermentation medium of low salinity and/or low amounts sodium salts and chloride salts, for example: see entire document and particularly at col. 23-24. The fermentation medium does not contain chloride and the amount of sodium salts is below 3.5 g/L (table 8); the microorganism is

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capable of producing more than 40% of total lipids (more than 30 wt% oil per unit of weight of dry biomass) and about 10% of omega-3 oils or more than 10 % DHA per dry biomass or more than 5 % DPA per dry biomass. The cited patent US 5,340,742 (Barclay) teaches that the fermentation medium contains sodium carbonate I amounts 0.067 g/L that falls in the claimed range less up to 3 g/L (col. 24, line 6). In the cited method the total sodium and/or chloride salt fractions in the medium salts are less than 1.75 g/L as required by the claimed method, for example: see table 10, wherein “minimal chloride” medium contains about 0.76 g/L of sodium ion as weight fraction in 2.37 g/L of sodium sulfate. In the cited method the medium total chloride sodium content is less than 250 mg/L (table 10). In the cited method the medium contains glucose, yeast extract, magnesium sulfate, calcium carbonate and potassium phosphate (col. 24, lines 5-8) and corn steep liquor is also used as a source of nitrogen (table 6). The amounts of magnesium sulfate, calcium carbonate and potassium phosphate are less than 3 g/L each (col. 24, lines 5-8). The cited patent US 5,340,742 (Barclay) teaches the use of medium pH 3-10, cultivation temperature between 10°C and 40°C and cultivation time for 1 to 10 days in the method for cultivating microorganisms belonging to *Thraustochytriales* or *Schizochytrium* as intended for production of oils, DHA and/or DPA.

Thus, the cited patent US 5,340,742 (Barclay) anticipates the claimed invention.

Claims 1, 4-7 and 10-17 as amended remain/are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,509,178 (Tanaka et al.).

Claims are directed to a method for cultivating microorganisms of the genus *Thraustochytriales*, wherein the microorganisms are cultivated in a fermentation medium with

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total sodium salts and chloride salts being less than 3.5 g/L, wherein no sodium or chlorine salts are added after beginning of fermentation and wherein the microorganisms are capable of producing more than 10 % DHA per dry biomass. Some claims are further directed to the use of microorganisms capable of producing more than 5 % DPA per dry biomass. Some claims are further drawn to the use of the medium with total sodium and chloride salt fractions less than 1.75 g/L. Some claims are further drawn to incorporation of various nutrients including glucose, yeast extract or corn steep liquor, magnesium sulfate, calcium carbonate and potassium phosphate in the medium. Some claims are further drawn to incorporation salts of magnesium sulfate, calcium carbonate and/or potassium phosphate in amounts less than 3 g/L each. Some claims are further drawn to the medium pH 3-10, to the cultivation temperature between 10°C and 40°C, to the cultivation time for 1 to 10 days in the claimed method. Some claims are further drawn to the microorganisms belonging to the genus *Schizochytrium*, *Thraustochytrium* or *Ulkenia*. Some claims are further drawn to the microorganisms belonging to *Ulkenia* sp. SAM 2179.

US 6,509,178 (Tanaka et al.) teaches a method for cultivating *Thraustochytriales* microorganisms including *Ulkenia* sp. SAM 2179 as intended for production of oils, DHA and/or DPA (see entire document) wherein the microorganisms are cultivated in a fermentation medium with low amounts of sodium salts and of chloride salts which are less than 3.5 g/L or which are 2.6 g/L (col. 9, lines 10-25). The microorganism is capable of producing more than 30 wt% oil per unit of weight of dry biomass, more than 10 % DHA per dry biomass or more than 5 % DPA per dry biomass (table 3, for example). The total sodium and chloride ions salt weight fractions are less than 1.75 g/L or about 1.47 g/L (col. 9, lines 14-16). The medium contains glucose, corn

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steep liquor, salts of magnesium and potassium phosphate (example 2) with amount salts being about or less than 3 g/L each (example 2). The cited patent US 6,509,178 (Tanaka et al) teaches the use of medium pH 3-10, cultivation temperature between 10°C and 40°C and cultivation time for 1 to 10 days in the method for cultivating microorganisms belonging to *Thraustochytriales* or *Ulkenia* sp. SAM 2179 as intended for production of oils, DHA and/or DPA.

Thus, the cited patent US 6,509,178 (Tanaka et al) anticipates the claimed invention.

Claims 1, 4-16 and 18 as amended remain/are rejected under 35 U.S.C. 102(b) as being anticipated by Yokochi et al. ("Optimization of docosahexaenoic acid production by *Schizochytrium limacinum* SR21". Appl. Microbiol. Biotechnol. 1998, vol.49, pages 72-76).

Claims are directed to a method for cultivating microorganisms of the genus *Thraustochytriales*, wherein the microorganisms are cultivated in a fermentation medium with total sodium salts and chloride salts being less than 3.5 g/L, wherein no sodium or chlorine salts are added after beginning of fermentation and wherein the microorganisms are capable of producing more than 10 % DHA per dry biomass. Some claims are further directed to the use of microorganisms capable of producing more than 5 % DPA per dry biomass. Some claims are further drawn to the use of the medium with total sodium and chloride salt fractions less than 1.75 g/L. Some claims are further drawn to the use of the medium with total sodium content of the medium being is less than 150 mg/L. Some claims are further drawn to the use of the medium with total chloride sodium content of the medium being is less than 250 mg/L. Some claims are further drawn to incorporation of various nutrients including glucose, yeast extract, corn steep liquor, magnesium sulfate, calcium carbonate and/or potassium phosphate in the

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medium. Some claims are further drawn to incorporation salts of magnesium sulfate, calcium carbonate and/or potassium phosphate in amounts less than 3 g/L each. Some claims are further drawn to the medium pH 3-10, to the cultivation temperature between 10°C and 40°C, to the cultivation time for 1 to 10 days in the claimed method. Some claims are further drawn to the microorganisms belonging to the genus *Schizochytrium*, *Thraustochytrium* or *Ulkenia*. Some claims are further drawn to the microorganisms belonging to *Schizochytrium* sp. SR 21.

The cited reference by Yokochi et al. teaches a method for cultivating microorganisms of *Thraustochytriales* including *Schizochytrium* sp. SR 21 as intended for production of oils, DHA and/or DPA (see entire document), wherein the microorganisms are cultivated in a fermentation medium without salts (figure 1a; at the absence of seawater) and, thus, without sodium and/or chloride salts or with amounts being less than 3.5 g/L or less than 1.75 g/L, 250 mg/L or 150 mg/L within the broadest meaning of the claims. The microorganism is capable of producing oils, DHA and DPA in amounts more than 30 wt% oil per unit of weight of dry biomass, more than 10 % DHA per dry biomass or more than 5 % DPA per dry biomass depending on the choice of nitrogen source and/or ratio of C/N (table 2 or page 76, col. 1, par. 3). The cited reference teaches incorporation of various nutrients including glucose, yeast extract, corn steep liquor, magnesium sulfate and/or potassium phosphate in the fermentation medium, the medium pH 3-10, the cultivation temperature between 10°C and 40°C and the cultivation time for 1 to 10 days in the method for cultivating microorganisms of *Thraustochytriales* including *Schizochytrium* sp. SR 21.

Thus, the cited reference by Yokochi et al. anticipates the claimed invention.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-18 as amended remain/are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,340,742 (Barclay), US 6,509,178 (Tanaka et al.), Yokochi et al. ("Optimization of docosahexaenoic acid production by *Schizochytrium limacinum* SR21". Appl. Microbiol. Biotechnol. 1998, vol. 49, pages 72-76) and Fan et al. ("Physiological studies of subtropical mangrove thraustochytrids". Botanica Marina, 2002, col. 45, pages 50-57).

Claims are directed to a method for cultivating microorganisms of the genus *Thraustochytriales*, wherein the microorganisms are cultivated in a fermentation medium with total sodium salts and chloride salts being less than 3.5 g/L, wherein no sodium or chlorine salts are added after beginning of fermentation and wherein the microorganisms are capable of producing more than 10 % DHA per dry biomass. Some claims are further directed to the use of microorganisms capable of producing more than 5 % DPA per dry biomass. Some claims are further drawn to addition of up to 3 g/L CaCO<sub>3</sub> to the medium. Some claims are further drawn to the use of the medium with total sodium and chloride salt fractions less than 1.75 g/L. Some claims are further drawn to the use of the medium with total sodium content of the medium being is less than 150 mg/L. Some claims are further drawn to the use of the medium with total chloride sodium content of the medium being is less than 250 mg/L. Some claims are further drawn to incorporation of various nutrients including glucose, yeast extract, corn steep liquor,

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magnesium sulfate, calcium carbonate and/or potassium phosphate in the medium. Some claims are further drawn to incorporation salts of magnesium sulfate, calcium carbonate and/or potassium phosphate in amounts less than 3 g/L each. Some claims are further drawn to the medium pH 3-10, to the cultivation temperature between 10°C and 40°C, to the cultivation time for 1 to 10 days in the claimed method. Some claims are further drawn to the microorganisms belonging to the genus *Schizochytrium*, *Thraustochytrium* or *Ulkenia*. Some claims are further drawn to the microorganisms belonging to *Ulkenia* sp. SAM 2179 or *Schizochytrium* sp. SR 21.

The cited patents US 5,340,742 (Barclay) and US 6,509,178 (Tanaka et al.) and the cited reference by Yokochi et al. are relied upon as explained above for the disclosure of method for cultivating microorganisms belonging to *Thraustochytriales* including *Ulkenia* sp. SAM 2179 and *Schizochytrium* sp. SR 21 as intended for production of oils, DHA and/or DPA.

In the methods of the cited patents US 5,340,742 (Barclay) and US 6,509,178 (Tanaka et al.) the microorganisms are cultivated in fermentation media with low amounts of sodium salts and chloride salts or with total amounts being less than 3.5 g/L. In the method of the cited reference by Yokochi et al. the microorganisms are cultivated in fermentation media in the absence of salts. The cited reference by Yokochi et al. also teaches that optimization of lipid production by representatives of *Thraustochytriales* including strain *Schizochytrium* sp. SR 21 depends on the choice of nitrogen source and/or ratio of C/N in the fermentation media (table 2 or page 76, col. 1, par. 3).

In addition, the reference by Fan et al. is relied upon to demonstrate that various representatives of *Thraustochytriales* including *Schizochytrium*, *Thraustochytrium* and *Ulkenia*

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are successfully grown at zero salinity (fig. 2) and/or in the absence of sodium salts and chloride salts

Therefore, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to practice method of culturing representatives of *Thraustochytriales* in low salinity media with a reasonable expectation of success in producing lipid containing biomass because it has been known that various representatives of *Thraustochytriales* including *Schizochytrium*, *Thraustochytrium* and *Ulkenia* are successfully grown at zero salinity and/or in low salinity media as adequately demonstrated by the cited references combined. Thus, the claimed invention as a whole was clearly *prima facie* obvious, especially in the absence of evidence to the contrary.

The claimed subject matter fails to patentably distinguish over the state art as represented by the cited references. Therefore, the claims are properly rejected under 35 USC § 103.

### ***Response to Arguments***

Applicant's arguments filed 3/01/2010 have been fully considered but they are not persuasive.

With regard to the claim rejection under 35 U.S.C. 112 (indefinite), the main argument is that there is no contradiction in the claims about exclusion of addition of sodium and chlorine salts in a fermentation medium. This argument is not found persuasive for the very least reason that the claimed invention not a product (culture medium) but a process and because the claimed invention does not point out when in the process the sodium and chlorine salts would not be added to the fermentation medium. Moreover, the depending claims 7-9 clearly indicate that

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some sodium and chloride salts are present and/or added in the claimed process media. Claims 6-13 also lack proper antecedent bases for "low salt" media or "low salt" fermentation media.

Thus, the claimed concept of salinity, amount of total salts and amounts of some individual salts such as sodium and chlorine are indefinite as claimed. Furthermore, the as-field specification describes incorporation of salts of the "Tropic Marin" product (page 11, lines 9 and line 15-16). Although its contents are not disclosed in the specification, it is reasonably to conclude that the "Tropic Marin" salts are artificial or natural seawater salt concentrate and, thus, these salts would essentially consist of sodium chloride. The specification also recites that no sodium and no chloride salts are added to "low salt medium" (that does not have antecedent basis in the preset claims) and this recitation does not absolutely exclude sodium and chloride salts as presently argued (response page 20). Therefore, the Applicants' claimed invention is also indefinite when claims are read in the light of specification and as argued.

The claim rejections under 35 USC § 102 and under 35 USC § 103 as being anticipated by and obvious over US 5,340,742 (Barclay), US 6,509,178 (Tanaka et al.) and/or Yokochi et al. have not been withdrawn because the claimed invention remains indefinite with regard to the concepts of salinity and salts including sodium and chlorine salts and because the Applicants' process does not absolutely exclude sodium and chloride salts as presently argued (response page 20), as claimed (claims 7-9) and when the claims are read in the light of specification (pages 7 and 11).

In particular, with regard to claim rejections under 35 USC § 102 as being anticipated by US 5,340,742 (Barclay), the arguments (response page 11) are based on disclosure at column 19, lines 12-62, wherein the cited patent teaches the use of medium M comprising about 31 g/L of

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total sodium and chlorine salts (col. 19, line 24). However, the medium M is diluted and it is used at 1.5% (v/v) amounts, for example: see col. 19 at line 33, which would provide for only 0.04% of sodium and chlorine salts in the process for cultivating *Thraustochytriales* if the cited patent. Thus, the teaching of the cited patent anticipates the claimed method drawn to the use of “low salt” medium with less than 3.5 g/L of total sodium and chloride salts.

In particular, with regard to the claim rejection under 35 U.S.C. 102(e) as being anticipated by US 6,509,178 (Tanaka et al.), the arguments (response page 14) are directed to the teaching of example 2 wherein the total amount of all salts is 7.6 g/L. However, the amount of all salts in the process is not clearly defined in the claims. The cited method comprises 2.9 g of total sodium and chlorine salts in the beginning of fermentation and no additional sodium and chlorine salts are added during fermentation.

In particular, with regard to claim rejections under 35 USC § 102 as being anticipated by Yokochi et al., the first argument (response page 16) is drawn to the idea that the cited reference mostly teaches the use of 50% sea salt concentration for process optimization. However, the 50% sea salt water concentration will provide for 1.75 g/L total salts (35 g of total salts are in 1 L of seawater in view of the Applicants’ exhibit from Wikipedia webpage) and this amount falls in the range of the presently claimed method. The other argument (response page 17) is that the cited reference fails to teach production of more than 10% DHA per dry biomass in the absence of added seawater or “without adding sodium salts and chlorine salts” as required by claim 1. This argument does not have persuasive grounds because the claimed method does not require a step of DHA recovery but it solely drawn to the use of microorganisms capable of producing or capable to bring forth more than 10% of DHA per dry biomass and because the present invention

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as claimed does not absolutely exclude the use of sodium and chlorine. The present invention as claimed allows for up to 3.5 g/L of sodium and chlorine salts. Thus, the teaching of the cited reference by Yokochi et al. about the process optimization at 50% seawater is within the scope of the presently claimed invention. Furthermore, the cited reference clearly teaches (see abstract) that the maximum yield of DHA production is more than 4 g/L. The figure 1A demonstrate that the maximum biomass is about 12 g/L. The figure 2 demonstrates the direct correlation between biomass and DHA production. Thus, at zero salts (figure 1a) wherein the biomass is about 6 g/L the microorganisms are capable to produce about 2 g/L of DHA that will be more than 10% DHA per biomass. Thus, the teaching of the cited reference by Yokochi et al. is within the scope of the presently claimed invention.

With regard to the claim rejection under 35 USC § 103 the main argument that the cited references neither teach nor suggest the claimed invention because absolutely no sodium or chlorine salts are added to the medium in the instant invention (response page 20). This is not found true. The claimed invention is indefinite. The as-filed specification describes that no sodium or chlorine salts are added to the “low salt medium” (page 7, lines 14-15) but this “low salt medium” is made from seawater salt concentrate “Tropic Marin” (page 11, line 9 and lines 15-16) that essentially consists of sodium chloride salts for being “marine” salt concentrate. Thus, the plain meaning of instant claims is that no sodium and chlorine salts are added to “low salt medium” “Tropic Marine” that already contains enough of sodium chloride.

With regard to the reference by Fan et al. Applicants argue that the reference teaches cultivation of *Thraustochytriales* microorganisms in seawater of different salinities but not in the absence of sodium and chlorine salts. However, the reference also demonstrates that various

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*Thraustochytriales* microorganisms perfectly grow at zero salinity and, thus, in the absence of sodium and chlorine salts, depending on other optimal conditions including temperature, for example: see figure 2.

The claimed subject matter fails to patentably distinguish over the state art as represented by the cited references. Therefore, the claims are properly rejected under 35 USC § 103.

No claims are allowed.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vera Afremova whose telephone number is (571) 272-0914. The examiner can normally be reached from Monday to Friday from 9.30 am to 6.00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon P. Weber, can be reached at (571) 272-0925.

The fax phone number for the TC 1600 where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 1600, telephone number is (571) 272-1600.

Vera Afremova

April 29, 2010

/Vera Afremova/

Primary Examiner, Art Unit 1657